

2nd mission making progress

Seven experiments which make up the first science pallet the Shuttle will carry into orbit are arriving at Kennedy Space Center throughout the month of November. The payload, called OSTA-1, will fly on the Shuttle's second flight, carrying out investigations primarily for Earth Resources.

During the mission the crew—one commander and one pilot—will power up the instruments, and ground controllers at JSC will send up commands. The "design philosophy" for this pallet is to

screen the instruments for use on unmanned flights in the future.

Five of the seven experiments will eventually be carried up by the Shuttle and deployed as unmanned Earth Resources satellites.

"The second flight is a test bed to fly the instruments for the first time and see how they'll perform," said Terry Hart, who represents the Astronaut Office in tracking development of the pallet.

If the instruments do not function, the

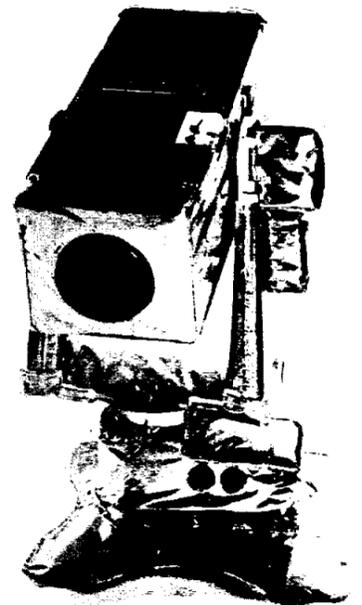
crew will have certain procedures to "work through the problem," Hart said.

Approximately fifteen employees of JSC's Payload Operations Branch are working now developing the crew procedures, as well as flight documentation and ground displays for the OSTA-1 pallet. At the end of the month a team from JSC will go to the Cape for a Pallet Acceptance Review—making sure the scientific instruments meet all the guidelines.

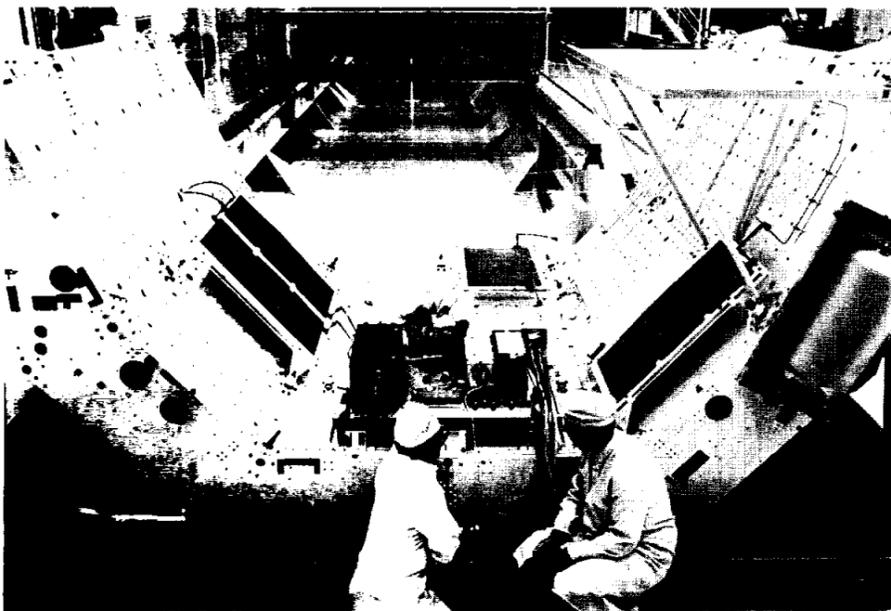
Then next July the full ground control and flight crews will begin running integrated sims for the second orbital flight, including payload operations—working towards a November 1980 launch. These sims will expand in September 1980 when the pallet goes through an "end to end test."

"Our team will sit here in the POCC (Payload Operations Control Center) and send commands to the experiment at the Cape," said Janis Plesums who is Lead Payload Officer for the second flight. "A crewman will be in the aft flight deck of the Orbiter also executing commands. We will watch the data from here."

All but one of the experiments—the Night-Day Optical Survey of Thunderstorm-Lightning—will be controlled from the ground. For the lightning experiment the crew will observe flashes and listen for crackling of thunderstorms on the night side of the Earth, and point the instruments to record lightning pulses.



This 16-pound Shuttle closed-circuit TV camera, being built by RCA, will guide astronauts in handling, deploying, and retrieving payloads. It will also transmit signals back to Earth for full color coverage of space missions.



1st science pallet, for 2nd Shuttle flight, at KSC

Pegasus 2 to reenter November 5

The Pegasus Two spacecraft assembly, launched by NASA in 1965, will reenter the Earth's atmosphere on or about November 5, according to notice given NASA by the North American Air Defense Command.

Pegasus Two was one of three satellites used to gather micrometeoroid data for use in the design of spacecraft. Pegasus One reentered in September of 1978 over Africa, and Pegasus Three reentered in August of 1969 over the Pacific Ocean. No surviving pieces of Pegasus One or Three were ever found.

Reentry heat will destroy approximately 9705 kg. (21,400 lb.) of orbital hardware which means about 726 kg. (1600 lb.) may survive reentry in several pieces. None of the sections has any

radioactive nuclear power sources or materials aboard.

Predicted footprint of all surviving pieces of Pegasus Two is an area up to 200 km. (124 mi.) wide and 3500 km. (2175 mi.) long.

The global band overflowed by Pegasus Two extends 31.7 degrees north and

south of the equator, an area that is three-fourths water.

Pegasus Two is considerably smaller than the Skylab space station that reentered July 11 in the Australia-Indian Ocean area. Also, the area overflowed by Pegasus is markedly less than that of Skylab which ranged from 90 degrees south to 90 degrees north latitude.

He contributed to the health of future crews

Prominent JSC scientist dies

When future spaceflight crewmembers are being immunized upon their return to Earth, they may not realize that man's understanding of blood cell mass changes in space is a direct result of the work of Stephen L. Kimzey. He contributed greatly to their health and safety in flight.

Kimzey was NASA's foremost expert on changes which take place in the blood and oxygen transport system during prolonged exposure to weightlessness. As a result of his work, these changes are no longer an ominous problem concerning man's ability to adapt during long space missions.

Stephen L. Kimzey at age 38 died in his sleep October 10.

Kimzey was head of JSC's Clinical Laboratory in the Medical Sciences Division. He came to the space program in 1968, and worked in support of the Apollo Program and as principal



Stephen L. Kimzey
Dec. 1, 1940 - Oct. 10, 1979

coordinating scientist for all Skylab hematology and immunology experiments.

He designed a comprehensive flight experiment, "The Influence of Spaceflight on Erythrokinetics in Man," which will fly on the first Shuttle/Spacelab mission.

Kimzey was an exceptional scientist, a man of great personal and scientific integrity. He will be missed by all who worked with him.

For this and other experiments the Orbiter will have to remain in Z-Local Vertical position (payload bay pointed to Earth) for at least 96 hours.

The OSTA-1 pallet is reusable. During the mission, five of the experiments will be mounted on a test pallet in the cargo bay; the other two will be in Columbia's cabin.

The seven OSTA-1 experiments are:
Shuttle Imaging Radar: for geologic exploration, especially locating minerals and faults.

Ocean Color Experiment: to map concentrations of chlorophyll-producing phytoplankton in the open ocean.

Continued on Page 4

New Shuttle admin office user-oriented

In an effort to streamline Shuttle management, Headquarters has established a new office which will be responsible for Space Transportation System operations such as scheduling, pricing and launch service agreements, and the Spacelab program.

The new office will be principal interface with all STS users.

The former Office of Space Transportation Systems has been renamed the Office of Space Transportation System Acquisition, and John F. Yardley will be the Associate Administrator. He and that office will be responsible for development and acquisition of the STS, including the Shuttle, its upper stages, associated ground equipment, and system improvements.

In announcing the change, Robert A. Frosch, NASA Administrator, said, "This move streamlines our Shuttle management by freeing John Yardley to focus his attention on getting the Shuttle system built and flying, and by centralizing our Shuttle services in a new, user-oriented organization."

The new operations office and its Associate Administrator have yet to be named.



Cosmic Art?

See Page 4

Bulletin Board

Please limit announcements to 10 lines, double-spaced copy

National Secretaries' Association (International) To Meet October 23

Mrs. Mary H. Brown, Chairman of the Board of Directors of the Harris-Galveston Coastal Subsidence District, will be guest speaker, sharing her business experiences, at the next meeting of the NASA Clear Lake Chapter of the National Secretaries' Association (International). The event is open to the public at the Nassau Bay Motor Inn Madrid Room. Hospitality Hour is at 5:30, dinner at 6:30, and the program begins at 7. Cost of the dinner is \$6; for reservations call Elaine Ragan at X-3937, or Bernice Woolsey, CPS, at 747-8140.

'Never lost a donor yet'

(Submitted by the EAA)

The third JSC Blood Drive of 1979 will be held at the Gilruth Rec Center on Thursday, November 8. In case you are not familiar with the Blood Bank, it is operated through St. Luke's Hospital and is the largest in the Gulf Coast Region.

It encompasses all JSC Civil Service personnel and most JSC contractors, both on and off site. JSC and the major contractors take turns sponsoring the blood drives so that there is at least one drive a month.

The schedule is published in the JSC phone book and anyone can give at any time.

For a donation of one pint a year, you get full blood insurance for your family at any hospital in the United States. You can, of course, give more often—once every two months—if you wish. None of the blood goes to waste—that which is not required for immediate use is separated into components and is used in research at the hospital.

Many perfectly healthy people have never donated blood. If you are one of these people, why not make this drive a first? It only hurts a little, and it helps a lot.

In all the years we've had a Blood Bank at JSC, we've never lost a donor.

For an appointment call Jim McBride, x-2541, or Bob Jones, x-6251.

Six Weeks to Shake It Out And Learn to Disco at Gilruth

The JSC Dance Club is sponsoring a six-week session on Disco dancing at Gilruth Center, starting October 30. An advanced class will meet at 7 p.m., in Room 206 with an Introductory Class starting at 8:30 p.m., in Room 206. Instructor for both classes is Alice Bass, from the Alice Bass Dance Studio, Dickinson. Classes are limited to 15 couples each with a cost of \$30 per couple. For more information and pre-registration, contact Lyyle Jiongo, X-3445.

AFGE to Repeat Cutlery Sale (By Popular Demand)

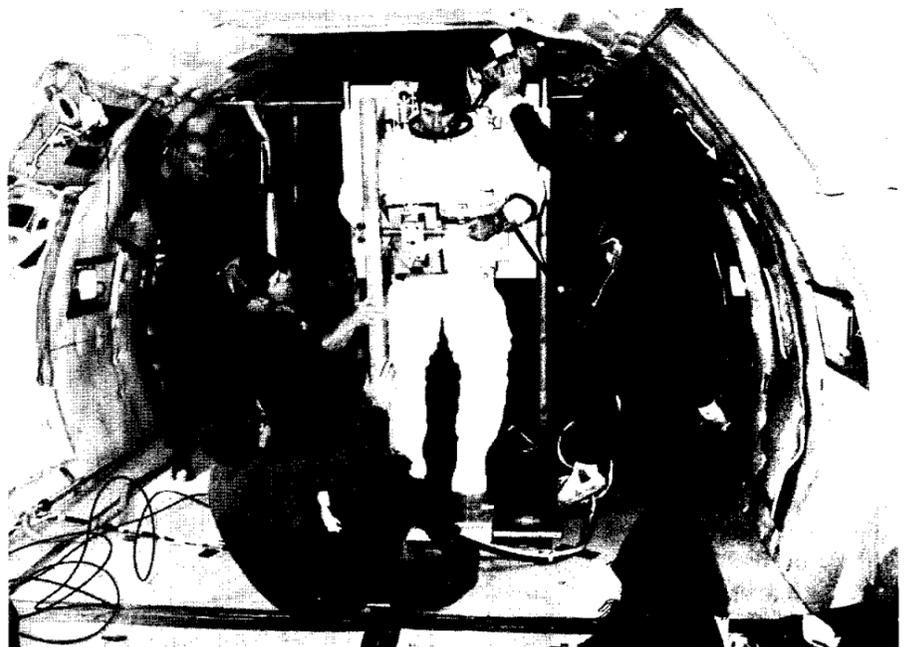
Truckload sale direct from factory!
Lifetime Cutlery - 19 pc. set - \$10.
Monogrammed Glassware - 36 pc. set - \$16.
Hostess Bakeware - 20 pc. set - \$17.
October 25 and 26, 6 a.m. to 3 p.m.
Across from Avenue B gate on NASA Rd. 1

You Do Have Rights If You'll Just Learn Them

General Consumer Rights; Family Law; Torts and Anatomy of a Civil Law Suit; and Wills, Trusts, Probate, and Real Property are Classes One through Four of a series the EAA has set up—a Survey Law Course to be held Tuesday evenings in Gilruth Center, beginning November 6. So that there are enough hand-out materials, please sign up in advance at the Rec Center or at the Building 11 Exchange Store for any or all of the four courses before November 1. The courses are held in conjunction with the NASA General Counsel Office and the Consumer Fraud Division of the District Attorney's Office.

Register by November 2 For Intermediate Automotive Course

The Intermediate Automotive Course at Gilruth Center can be a follow-on to the Basic Automotive Course or a supplement to present skills. The course emphasizes minor tune-ups, carburetor overhauls, and other light repairs. There will be four lectures and two labs, and students will actually perform a tune-up and either install



Spacesuit donning exercise

John Young, assisted by Bob Crippen, enters the hard material torso of the Shuttle extravehicular spacesuit during a period of weightlessness aboard the KC-135. The torso is held in place by a stand, simulating the function provided by the airlock wall aboard the Orbiter. Note, Crippen's suit is the type to be worn in the shirtsleeve environment onboard the Orbiter. PTD Photo

a carburetor kit or overhaul their brakes during the labs. Register at the Gym Office by November 2. The course starts November 8. Cost: \$33.50. Call X-3594 for more information.

Shows of Interest On PBS (Channel 8)

The film *Meteor* will be sneak previewed Friday October 26 at 11:30 p.m. and again Wednesday October 31 at midnight. On *Ethics in America* Thursday November 1 "The Medical Ethic" will be discussed. And at 5 p.m. on Saturday November 3 America's fascination with jogging will be covered on *Run America Run*. All on Channel 8, PBS.

Basketball Officials and Scorers Needed—Will Train

The Gilruth Center needs sanctioned basketball officials for the upcoming fall and winter basketball seasons. If there are not enough sanctioned officials available, the center will conduct a clinic and offer JSC sanctioning to persons wanting to officiate. Also, official scorers

are needed for the basketball season. Call X-3594 for more information.

On Sale at The JSC Exchange Store

(Store hours 10 a.m. to 2 p.m.)
Dean Goss tickets - \$10 single
\$20 couple (Reg. \$14.50 each)
ABC Theatre tickets - \$2 each
General Cinema tickets - \$2.40 each
Six Flags Over Texas tickets
\$7.25 for one day (Reg. \$9.25)
\$9.25 for two days (Reg. \$13.95)
Astroworld tickets - \$7.25 (Reg. \$9.25)
Magic Kingdom Cards - Free
Sea-Arama Marineworld Fun-Time Card - Free
FBA presents "Entertainment 80". Available at the Exchange Store Nov. 1, 1979, \$15 each book.

Need Extra Christmas Money?

Turn in a Cost Reduction idea by Thanksgiving and you can earn extra money by Christmas. Send a Form 1150 to Mail Code BE3.

Putting it in the perspective

'Voyager is a one six-pack mission'

(During the recent Saturn encounter, David Morrison, Professor of Astronomy at the University of Hawaii and member of the Voyager Imaging Team for NASA, spoke on a panel on the Golden Age of Planetary Exploration. Following are excerpts from his speech.)

This is an extraordinary period. We are not only reaching out farther than we ever have in the Solar System, but we have a kind of culmination of the Jubilee Year of

Planetary Exploration.

It began with the tremendously successful Pioneer Venus last December, orbiting the planet, dropping four probes into the atmosphere. We then went on with Voyager One in March exploring the Jovian system, and following behind it the equally successful Voyager Two in July. And now we are visiting Saturn—all in one year.

With all this we have compressed one century of exploration into a few months of time—as if deGama, Columbus,

Magellan, and Cook had all sailed back from their voyages of exploration within a period of just a few months. It's incredible to imagine what impact their discoveries would have made if they'd all arrived at once. We're in just that same position, only perhaps more so.

Sometimes we have to defend all this to our friends. Some people say it's expensive, and it is. But it's better to think in terms of the cost per person.

I like to measure the cost of a planetary mission in units of a beer. We all know what a beer costs, and we all know what a beer means to us. Voyager is a one six-pack mission. That is, the total cost of Voyager to every adult citizen in the United States is the equivalent of one six-pack of beer.

The trip to Saturn was a real cheapie: We got two fly-by's of Jupiter by Pioneer and now one of Saturn for two cans of beer per person.

Now that's cheaper by a long shot than the cost of going to a movie.

We're not exploring just pieces of a new world, we're exploring whole new worlds, worlds that we hardly knew existed before.

Looking at a picture today of Jupiter's moons you can see what a diverse set of worlds they are. Six months ago these

were nothing but unresolved points of light through a telescope.

Planetary exploration has gone far beyond astronomy and ground-based observations. Astronomy is longer an esoteric science; in fact, we are in some ways losing out to the meteorologists, geochemists, geologists, and others who are looking at these as real worlds.

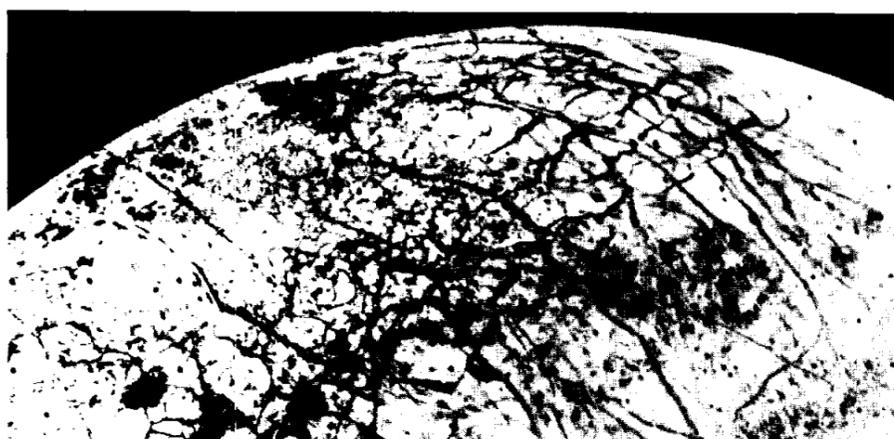
This Jubilee Year of planetary exploration is the end of the road. We are now living on the investment and the wisdom of making those investments that took place six, eight, and ten years ago.

Voyager will go on to Saturn, and we have one more planetary mission—Galiileo, the Jupiter Orbiter and Probe. And that is all, folks. We aren't investing our beers any more.

From a perspective of the future that's a tragedy.

Surely, if historians are around to write the history of our country 100 years from now, or 50 years from now, the space program will be one of our greatest accomplishments. People will debate whether all the wars or political efforts were good or bad, but I can't imagine anyone from the perspective of the future questioning the value of what we've done in planetary exploration.

I hope we can keep it up.



EUROPA—'What a diverse set of worlds they are'

Waiting for a Shuttle? No.

These employees are taking

part in a fire drill at

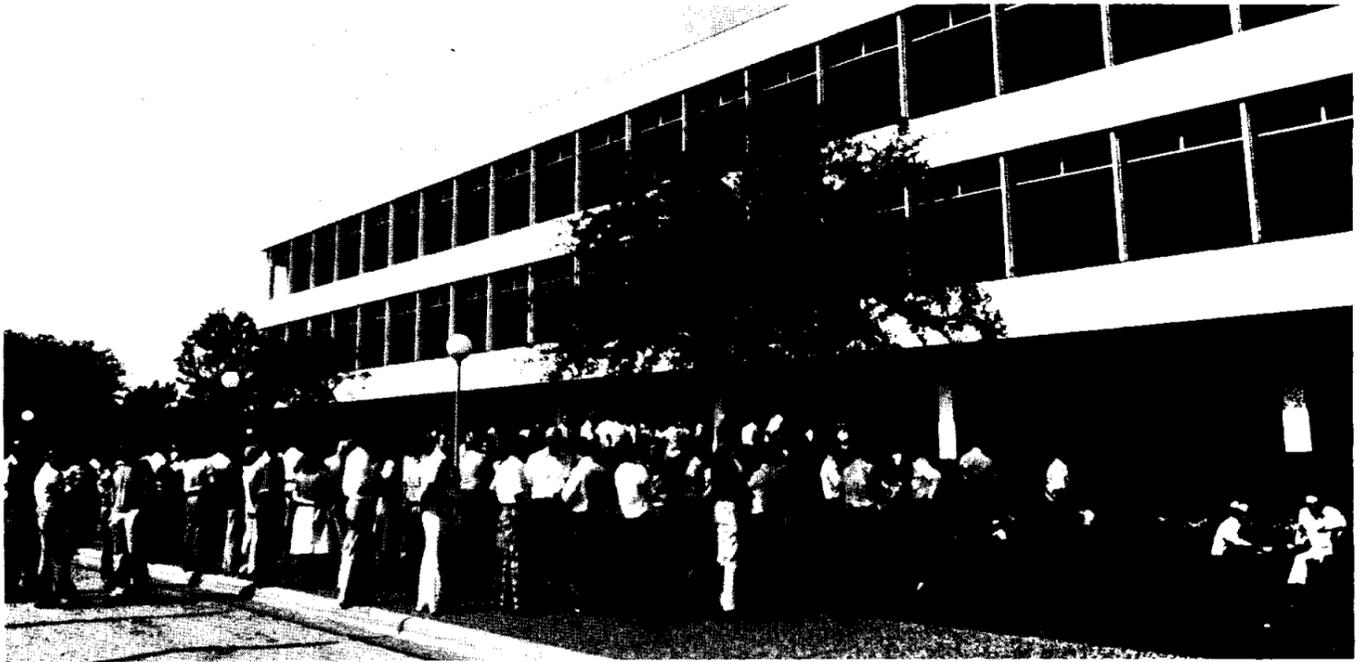
Building Four, part of

JSC's Fire Prevention Week

program. No, there were no

test fires, but everyone did

get out of the building.



'She types out response error-free in record time'

When a secretary answers a phone with a calm, friendly voice that radiates self-confidence, it affects the entire transaction that follows. Glenda Malone of the Space Shuttle Program Office can maintain a personable and attentive attitude as the phones ring off the wall, even while carrying out two jobs at once—often unfamiliar assignments under what others would call impossible stress.

Malone is secretary to the Assistant Manager, Space Shuttle Program, but she also serves as regular backup to the Program Manager's secretary. So she has to stay on top of the requirements for both assignments. Recently she had to fill in for an extended period while the Program Manager's secretary was out for medical reasons. Malone's adaptability helped maintain the Program Office's smooth operations.

Malone's responsibilities have grown since she came onboard in 1971, and so have her qualifications. She has earned a Bachelor of Business Education degree while continuing to work full time, and now puts her new administrative skills to work—especially as the office's Training Coordinator. She also supports the Ex-



Glenda Malone
Outstanding Secretary

ecutive Assistant by monitoring overtime, travel budgets, supplies, and other administrative jobs.

With all her leadership qualities, she still performs valuable secretarial duties like a professional: locating the required data, aiding in the decision on how to resolve an action, and then typing out the response error-free in record time.

Glenda Malone is JSC's Outstanding Secretary for September.

What's cookin' in the JSC cafeteria

Week of October 22 - 26

Monday: French Onion Soup; Beef Chop Suey; Polish Sausage w/German Potato Salad; Breaded Veal Cutlet (Special); Okra & Tomatoes; Green peas. Standard Daily Items: Roast Beef; Baked Ham; Fried Chicken; Fried Fish; Chopped Sirloin; Selection of Salads, Sandwiches and Pies.

Tuesday: Split Pea Soup; Shrimp Creole; Salisbury Steak; 8 oz T-Bone Steak; Fried Chicken (Special); Mixed Vegetables; Beets; Whipped Potatoes.

Wednesday: Clam Chowder; Fried Catfish w/Hush puppies; Braised Beef Rib; BBQ Plate; Weiners & Beans; Shrimp Salad; Stuffed Bell Pepper (Special); Corn O'Brian; Italian Green Beans; Rice.

Thursday: Chicken Noodle Soup; Beef Stroganoff; Turkey & Dressing; BBQ Smoked Link (Special); Lima Beans; Buttered Squash; Spanish rice.

Friday: Seafood Gumbo; Broiled Fish; Liver w/Onions; Seafood Platter; Fried Shrimp; Meat Sauce & Spaghetti (Special); Green Beans; Buttered Broccoli; Whipped Potatoes.

Week of October 29 - November 2

Monday: Beef & Barley Soup; Beef Chop Suey; Breaded Veal Cutlet w/Cream Gravy; Grilled Ham Steak; Weiners w/Baked Beans (Special); Whipped Potatoes, Brussels Sprouts; Buttered Rice. Standard Daily Items: Roast Beef; Baked Ham; Fried Chicken; Fried Fish; Chopped Sirloin; Selection of Salads, Sandwiches and Pies.

Tuesday: Celery Soup; Frito Pie; Turkey a la King; Pork Chop w/Applesauce; Chinese

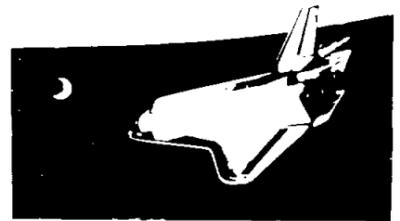
Pepper Steak (Special); Au Gratin Potatoes; Breaded Squash; Buttered Spinach.

Wednesday: Clam Chowder; Fried Catfish w/Hush puppies; Braised Beef Ribs; Mexican Dinner (Special); Spanish Rice, Ranch Beans; Buttered Peas.

Thursday: Green Pea Soup; Corned Beef w/Cabbage & New Potatoes; Chicken & Dumplings; Tamales w/Chili; Hamburger Steak w/Onion Gravy (Special); Navy Beans; Buttered Cabbage; Green Beans.

Friday: Seafood Gumbo; Deviled Crabs; Broiled Halibut; Liver & Onions; BBQ Link (Special); Breaded Squash; Green Beans; Corn; New Potatoes.

Roundup deadline is the first Wednesday after publication.



The Roundup is an official publication of the National Aeronautics and Space Administration Lyndon B. Johnson Space Center, Houston, Texas, and is published every other Friday by the Public Affairs Office for all Space Center employees.

Writer/Editor: Kay Ebeling

Photographer: A. "Pat" Patnesky

Roundup Swap Shop

Property & Rentals

Sale: Waterview lot on Lake Livingston near Wolf Creek Park, trees, pool, boatramp, tennis and clubhouse all for \$2440. 488-5445.

Lease/Sale: 3-2-2 Wedgewood, fireplace, fenced yard, formal DR, \$425/mo + deposit. Jeff X7429 or 482-5393.

Sale: Baywind I condo, 2-BR, 2 baths, fireplace, patio, 950 sq. ft., first floor, exc cond, the price is right. 334-2461.

Galveston West End, 2-BR, By-the-Sea condo, furn, \$210/Week off, \$280/Week in season. Clements 474-2622.

Sale: Above flooding, all electric 3-3-2C townhouse. Large bdrms, exc cond, near NASA, 7 3/4% assumable, \$52,000. X4005 or 482-3596.

Sale: Seabrook, Miramar, house, 3-2-2, VA, cent A/H, walk elem and intermed schools, mid 40's, Mason X6483 or 474-2130.

Cars & Trucks

69 Buick Skylark, runs good, good tires, \$200. Barbara X4150 or 943-3630.

77 Bonanza Chevrolet PU, fully equipped, new tires. 479-8141 after 6 or weekends.

78 Mercury Monarch, 6 cy. Ghia, air, stereo, CB, exc cond, 17,000 miles. 488-4398 after 5.

76 Triumph TR-7, AM/FM/8-trac, air, low mileage, reg gas, 20 + MPG, anxious to sell, \$4000, Frank X7204 or 332-7383.

69 Mustang, 302, auto, air, PS, AM radio, good radials, \$1500 or best offer. 485-9066 after 5.

70 AMC Hornet 6 cyl, 2 dr, 3 spd, PS, AM/FM radio, good radials, low mileage, \$1000 or best offer. 485-9066 after 5.

79 Monte Carlo, air, elec, seat control, PS, FM/AM, cruise control, 22,000 miles, \$5,900. 474-3768.

79 El Camino, Royal Knight, air, tilt steering, bucket seats, 4-speed, AM/FM, intermittent wiper, 11,000 miles, \$6,500. 474-3768.

Wanted

The Clear Lake Emergency Medical Corps seeks volunteers, 18 years or older for community emergency medical service. 488-0663.

Four tickets to the Oilers/Raiders game on November 11. Bates X4601.

Two to six tickets to Oiler home games (particularly Oakland game). 488-4412.

Clear Lake City Volunteer Fire Department seeks men and women 18 years and older for community service. For info call 488-0023.

Boats & Planes

16' Z-CAT Catamaran and trailer, sails included, exc shape, \$2600. Barbara X5365 or 339-2456 after 5.

Vega 27. Cruising sailboat, diesel auxiliary, fully equipped, new cond, Seabrook shipyard, R Pier. 333-3601.

14' aluminum boat, 33 hp Evinrude, galvanized big wheel trailer. Swivel seats, depth finder, trolling motor. Never in salt water. \$975. 645-6267.

"LIDO-14" sailboats, new/used, family sailing/racing on C.L./L. Hou/etc. Big fleet, exc inflation hedge. 334-2392 or 482-7305.

Miscellaneous

Size 12 grey leather coat, \$100. Like new 645-5206 after 5.

Exercycle - Low mileage \$25. Rubenstein X5461 or 334-2354.

Professional hand wash, wax and cleaning of your motor home. 1 day service. Bonded, references. By appointment only. 729-7654 or 645-2700.

Self-propelled lawnmower, Briggs and Stratton power plant. 3 and 1/2 hp, recently overhauled, \$100. Poindexter X4241 or 474-2203.

Wargamer looking for others — AH, SPI, Microgames. 333-2476 after 5:30.

Ads should be under 20 words, double spaced, typed or printed, one ad per person. Deadline for submitting or cancelling ads is 5:00 p.m. the first Wednesday after publication. Send ads to AP3 Roundup, or deliver them to the Newsroom, Building 2 annex. No phone-ins, please. Swap Shop is open to JSC federal and on-site contractor employees for non-commercial personal ads. Goods or services must be offered as advertised without regard to race, religion, sex, or national origin.

Household Articles

Spanish dinette set; blue sofa bed, \$180; throw rugs, \$4 each; elegant carpet; 30-gal octagonal aquarium, \$75. 333-2340 after 5.

White desk, formica top, 7 drawers with matching chair suitable for student or vanity, \$65. 643-8170 after 5.

Mahogany dining table, \$275; antique brass wood box, \$85; hobby horse, \$95; Chippendale desk, \$250; odd chair, \$20; pedestal, \$30. 488-5564.

Baby Bed, \$15; playpen, \$15; king-size mattress, \$20. (Items must be picked up by you.) Cris X5809 or 534-3756.

90" French provincial sofa, mint cond, green/gold brocade, dark wood trim, gold/wood slipper chair to match, \$350. Dorothy X3274 or 422-2044 after 5.

Chrome dinette table and 4 chairs, 1 glass top chrome coffee table and 1 glass top end table all for \$300. Shelander 729-3698 after 5.

Office desk with file drawer, government surplus. Rocha X4393 or 333-4606.

TV-To view or not to view is not the question regarding this 25" RCA color TV. But will the Mediterranean cabinet compliment your decor. \$100. Rubenstein X5461 or 334-2354.

Duncan Phyle coffee table, \$70; baby bed, \$10; end table, \$7; sewing cabinet, \$15. Barbara 482-8827.

GE portable dishwasher, good cond, \$50 (white). 482-3119.

Pets

Kittens, 4 months old, not suitable for apartments 649-7516.

Five poodle puppies, 3 mo old, silver and white, with papers, \$80 each. 437-6387 after 6.

Personals

Happy 40th Birthday to Carl Lanham on October 13, 1979.

Clarification

There is a 20-word limit per person on Swap Shop ads. If you have more than one ad, please limit the total words to 20. Longer ads will be cut down to the maximum. Please cooperate, as this keeps the Swap Shop from taking over the page. —Ed.

Lost & Found

Lost: Gold wedding ring; wide, rope twist band. If found please call Carolyn Johnson X2805. Reward.

Carpools

Van pool from Sagemont area. Interested? Don X5491.

The Era of the Hard-Hat Astronaut

After scientists and engineers, the next group to go into space will be technicians.

Second in a series on space industrialization

WANTED: Electronics technicians for construction project in space. Must be able to pass physical. Phone 713/700/488-3986-72905. EEOE.

In the 1980's scientist astronauts will carry out experiments in space—more extensively as the Shuttle becomes operational. In most cases the space agency will turn over results of those experiments to the private sector, in keeping with NASA's charter: "The space activities of the United States shall be conducted so as to contribute materially to . . . the potential benefits to be gained from the opportunities for . . . utilization of space for peaceful purposes."

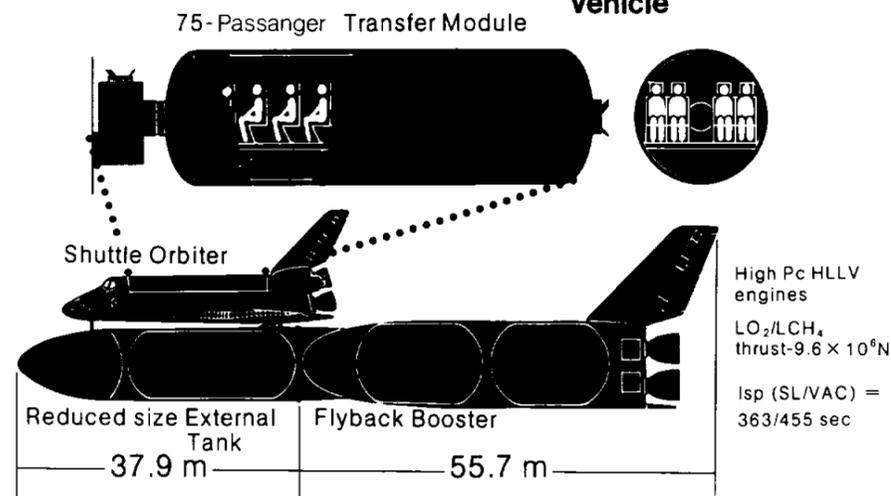
So on one mission early Shuttle astronauts will perfect procedures to make crystals for the electronics industry. On another they'll find ways to fuse elements into long-life metals for the steel industry.

Meanwhile investors on Earth will watch for what in 1979 *Fortune* Magazine called "the possibility of an industrial bonanza" in space.

NASA will not be the only American organization putting structures into Earth

NASA

Personnel Launch Vehicle



orbit. And top level scientists and pilots will not be the only astronauts. Someone will have to build the space factories, and later work in them.

"We're going to have some building jobs that will keep people up there longer and longer," Robert Frosch told a *Boston Globe* reporter last year. He went on to describe the "construction shacks" that would house workers needed for new industries developing in space.

NASA-contracted studies have shown that one space factory could employ 200

- 300 persons, categorized as construction workers. They would not need Ph. D.'s, but probably two-year technical degrees, physical agility, and a thirst for adventure.

It would take 500-1000 workers to construct a solar power satellite in one year.

Jobs would be similar to Earth construction jobs: assembly operators, supervisors, repair crews, quality assurance techs, electronics technicians, laser

operators, and propellant operators, to name a few.

The same types of people seen cruising Highway 225 in pick-ups will be working in space—though they may trade the six-packs for tomato juice to pass physical requirements. The same people who today straddle pipelines hundreds of feet off the ground will be maneuvering on the end of a cherry-picker, inspecting assembly-line products, and planning out TGIF recreation hundreds of miles above the Earth.

A space construction worker might put in a 10 to 12 hour day. He would have specialized training and, because of the risk of exposure to solar radiation, be rotated from Earth to space on a 90-day basis.

After a day's work he'd go back to the space habitat—a structure carried up in modules years earlier by Space Shuttle astronauts. He might play a game of zero-g handball against a curved wall, watch Earth TV via Comsat, or just spend a few hours in the library.

In the dorm-like atmosphere of the habitat there would be cook astronauts, laundry service astronauts, and maintenance crews; plus recreation facilities, special incentive pay, and the adventure of going into space.

Corporations would have little trouble recruiting.

Health Program On Heart Disease

Coronary arteriosclerosis starts in childhood and may manifest itself in men younger than age 30. The exact cause of coronary heart disease (CHD) is still unknown, but a number of factors which increase the risk in certain individuals have been identified.

The major risk factors found in the Framingham Heart Study are hypertension, elevated blood cholesterol level, and cigarette smoking.

In addition, there are other factors less extensively studied that may be major causes of CHD in some persons. The more important of these include diabetes, obesity, certain personality and behavior traits, lack of physical activity, and low levels of HDL-cholesterol.

Dr. William Squires, Kelsey-Seybold Clinic's Exercise Physiologist/Physical Fitness Coordinator, will help you learn more about the role these and other risk factors play in CHD at the Health Education Program to be held on Friday, October 26 at 10 a.m. and again at 1 p.m.

1st Shuttle pallet

Continued from Page 1

Shuttle Multispectral Infrared Radiometer: to obtain data from specific test locations in 10 spectral bands.

Measurement of Air Pollution from Satellites: to measure carbon-monoxide in the Orbiter's flight path.

Feature Identification and Location Experiment: to identify, classify, locate, and track surface features and clouds.

Night-Day Optical Survey of Thunderstorm-Lightning: First attempt to look at lightning from space and develop lightning prediction techniques.

Life Science Carry-On Experiment: to determine the moisture needed for plant growth in space—prototype for a Spacelab One experiment.

About six weeks before launch, OSTA-1 will be sealed inside a payload canister and installed in the Orbiter.

OSTA-1 was named for its funding office, NASA's Office of Space and Terrestrial Applications at Headquarters.

Energy Saving Tip

Need new tires? Consider radials. You'll get better mileage and longer wear.

Review



The seven original astronauts had the right stuff

Stretching the printed word to the edge of the envelope

The Right Stuff is about test pilots and astronauts in the late fifties and early sixties. It's a New Journalism treatment of climbing the "ziggurat" and the transition when the new slot, astronaut, was added to the test pilots' "pyramid."

Author Tom Wolfe uses methods that make pre-New Journalism English teachers purse their lips, because in trying to put you *right there*; Wolfe breaks a few rules—takes the printed word out to the edge of the envelope, just as test pilots take their machines out to extremes to prove them.

With rocket-fired words, Wolfe defines an amorphous quality—the *stuff* of a test pilot—by writing around it in circles, repeating phrases, and carrying out sentences through paragraphs that go on and on for pages and pages.

The book is hilarious, especially scenes of the physical testing of NASA's first 30 astronaut finalists at the Lovelace Clinic, and John Glenn at the first press conference, John Glenn jogging around the bachelors' quarters, and the arrival at Houston where "Herb Snout" and "Gurney Frinks" would come up and shake their beef greased hands welcoming the seven to Boom Town.

Wolfe gets it all down, especially the

press: "Some of them had cameras with the most protuberant lenses, and they had a way of squatting and crawling at the same time, like the hunkered-down beggars you saw all over the Far East. (As the press conference began) all these grim little crawling beggar figures began advancing toward them, elbowing and hipping one another out of the way, their cameras screwed into their eye sockets, until they were all over them, within inches of their faces in some cases, poking their mechanical beaks into everything but their belly buttons."

Things haven't changed much. Space program workers today will identify with Wolfe's description of the sims: "It got to the point where it seemed as if they were training for an abort rather than for a launch;" with schedule slips; and with Chris Kraft as a flight controller making split-second 10-year repercussion decisions.

The book is also sensitive on tough issues, and test pilots' families may have a hard time reading it.

Sometimes the repetition and circular writing get to be too much. All the "flying and drinking and drinking and driving and driving and whatever" can get to you, but only if you don't read fast enough or think fast enough to have "the right stuff" to get through a Tom Wolfe book.



It's workers cleaning the screen in Mission Control Center